

CLAIMS

What is claimed is:

- 5 1. A method of updating Global Positioning System almanac data comprising steps of:
- obtaining a current satellite almanac for a satellite constellation at a server in a communications infrastructure associated with a wireless device;
- creating a subset of the current satellite almanac in the server that includes
- 10 satellite almanac data only for fewer than all satellites listed in the current satellite almanac; and
- transmitting the subset of the current satellite almanac from the server to the wireless device.
- 15 2. The method of Claim 1 further comprising steps of receiving the subset of the current satellite almanac from the server and updating a satellite almanac stored in the wireless device with the subset of the current satellite almanac.
3. The method of Claim 2 wherein the step of updating a satellite almanac
- 20 stored in the wireless device comprises:
- making a copy of the current satellite almanac in the wireless device;
- updating the copy with the subset of the current satellite almanac; and
- replacing the current satellite almanac stored in the wireless device with the copy.
- 25 4. The method of Claim 1 wherein the step of obtaining a current satellite almanac includes downloading the current satellite almanac from the Internet to the server.
- 30 5. The method of Claim 1 wherein the step of creating a subset of the current satellite almanac in the server comprises including satellite almanac data for at least one satellite not in view of the wireless device.

6. The method of Claim 1 wherein the step of creating a subset of the current satellite almanac in the server comprises including ephemeris data for at least one satellite in view of the wireless device.

5 7. A method of updating Global Positioning System almanac data comprising steps of:

 determining an approximate position of a wireless device;

 obtaining a current satellite almanac for a satellite constellation at a server in a communications infrastructure associated with the wireless device;

10 determining which satellites are not in view of the wireless device;

 creating a subset of the current satellite almanac in the server that includes data only for one or more satellites not in view of the wireless device;

 transmitting the subset of the current satellite almanac from the server to the wireless device;

15 receiving the subset of the current satellite almanac from the server at the wireless device; and

 updating a satellite almanac stored in the wireless device with the subset of the current satellite almanac.

20 8. The method of Claim 7 further comprising a step of calculating Doppler data in the wireless device.

 9. The method of Claim 7 further comprising a step of deleting a satellite from the satellite almanac stored in the wireless device for a satellite no longer in service.
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 10. The method of Claim 7 further comprising a step of transmitting a list of satellites no longer in service from the server to the wireless device.

30 11. The method of Claim 7 wherein the step of creating a subset of the current satellite almanac in the server comprises including satellite almanac data for satellites in the satellite constellation not in view of the wireless device.

12. The method of Claim 7 wherein the step of creating a subset of the current satellite almanac in the server comprises including ephemeris data for satellites in view of the wireless device and ephemeris data for at least one satellite in view of the wireless device.

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13. The method of Claim 7 wherein the step of obtaining a current satellite almanac includes downloading the current satellite almanac to the server from the Internet.

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14. The method of Claim 7 further comprising a step of requesting the server to transmit the subset of the current satellite almanac to the wireless device when the current satellite almanac stored in the wireless device is stale.

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15. The method of Claim 7 further comprising a step of requesting the server to transmit the subset of the current satellite almanac to the wireless device on a periodic basis.

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16. The method of Claim 7 further comprising a step of storing a list of satellites in the server for which updated almanac data is required for a specific subscriber including approximate position information of the wireless device associated with the specific subscriber.

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17. The method of Claim 16 further comprising a step of initiating the updating of the satellite almanac by the server or by the specific subscriber according to at least one of a regular schedule, a history of updates, and cellular event triggers.

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18. The method of Claim 17 further comprising a step of determining the regular schedule by one of a time frame after which the current satellite almanac stored in the wireless device is stale, a time frame after which satellites in view are likely to be out of view, and a calculated time frame after which satellites in view will be out of view.

19. The method of Claim 17 further comprising a step of determining a time for transmitting the subset of the current satellite almanac to the wireless device by the history of updates in conjunction with the list of satellites in the server for which updated almanac data is required for the wireless device associated with the specific subscriber.

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20. The method of Claim 17 wherein the cellular event triggers include one of Location Update, Handover, Reconnect, and Reselect.